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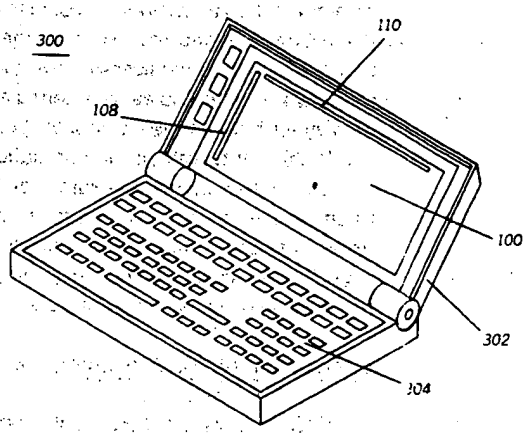
(54) Embedded antenna for communication devices.

(57) A radio communication device (300) having a display terminal (100) includes a glass portion (102) with an antenna (108) deposited thereon. The radio communication device (300) also includes a receiver (408) for receiving a radio communication signal. Radio communication signals are coupled to the receiver (408) via the antenna (108). In another aspect of the present invention, the radio communication device (300) includes a metal frame (206) which operates as its antenna and secures the display terminal (204) to the radio communication device (300).

FIG.3



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6. The radio of claim 4, wher in th display comprises a Liquid Crystal Display (LCD).

7. The radio of claim 4, wh rein the ant nna is a loop antenna.

8. A communication device for receiving a radio frequency communication signal, the device comprising:

a liquid crystal display having a glass portion;

at least one loop antenna printed on the glass portion;

a metal frame for securing the display to the device, the frame providing the return path for the at least one loop antenna; and

a receiver coupled to the antenna for receiving the radio frequency communication signal.

9. A communication device for receiving a radio frequency communication signal, the communication device comprising:

a display having a glass portion;

a receiver for receiving the radio communication signal; and

a metal frame antenna for coupling the radio communication signal to the receiver and mechanically securing the display to the communication device.

10. A communication device for receiving a radio frequency communication signal, the device comprising:

a liquid crystal display having a glass portion;

at least one loop antenna printed on the glass portion; and

a receiver coupled to the antenna for receiving the radio frequency communication signal.

FIG.1

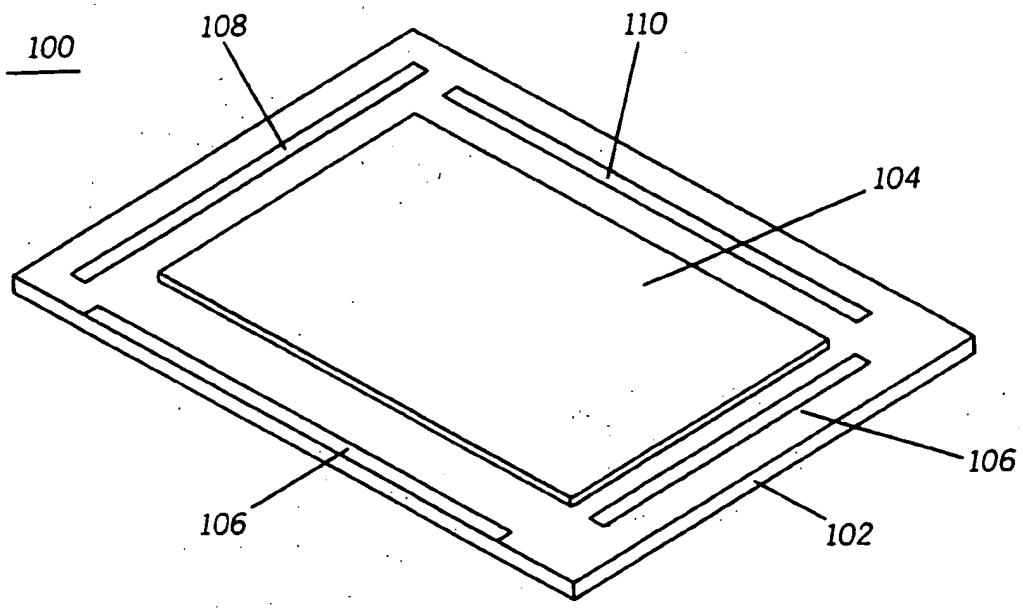

100
108
110
104
106
106
102

FIG.2

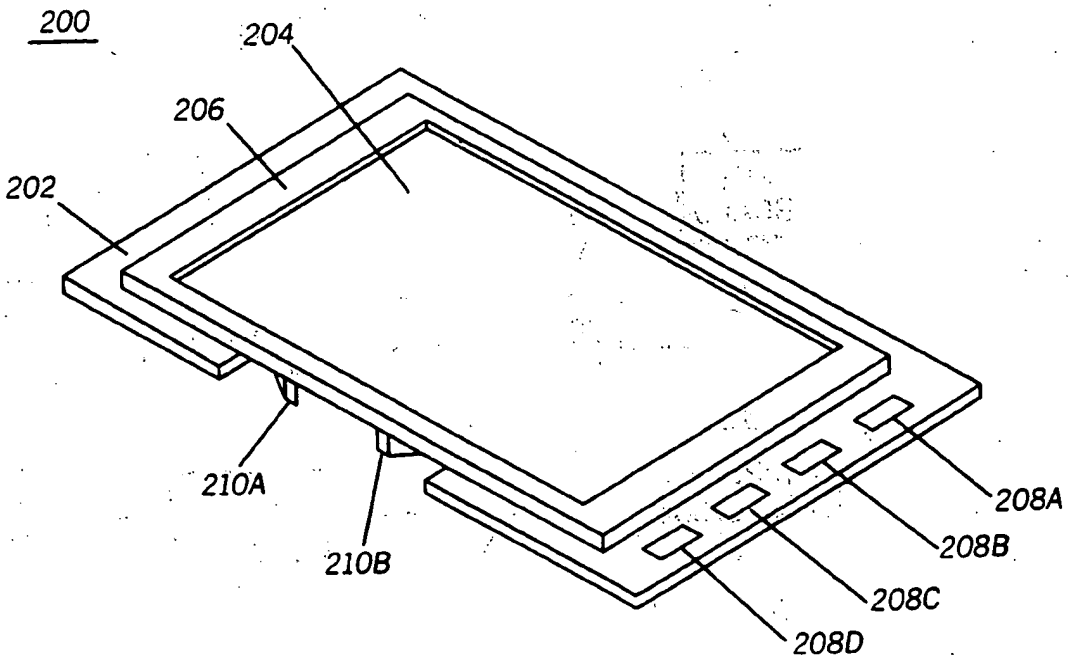

200
204
206
202
210A
210B
208A
208B
208C
208D

FIG.3

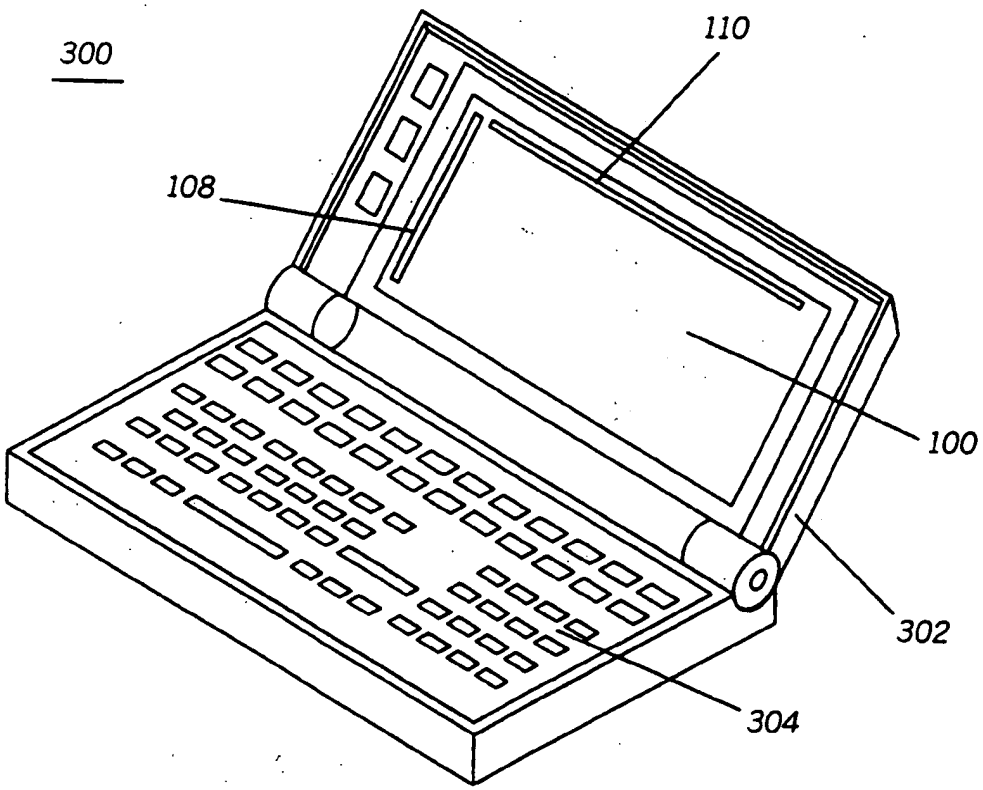
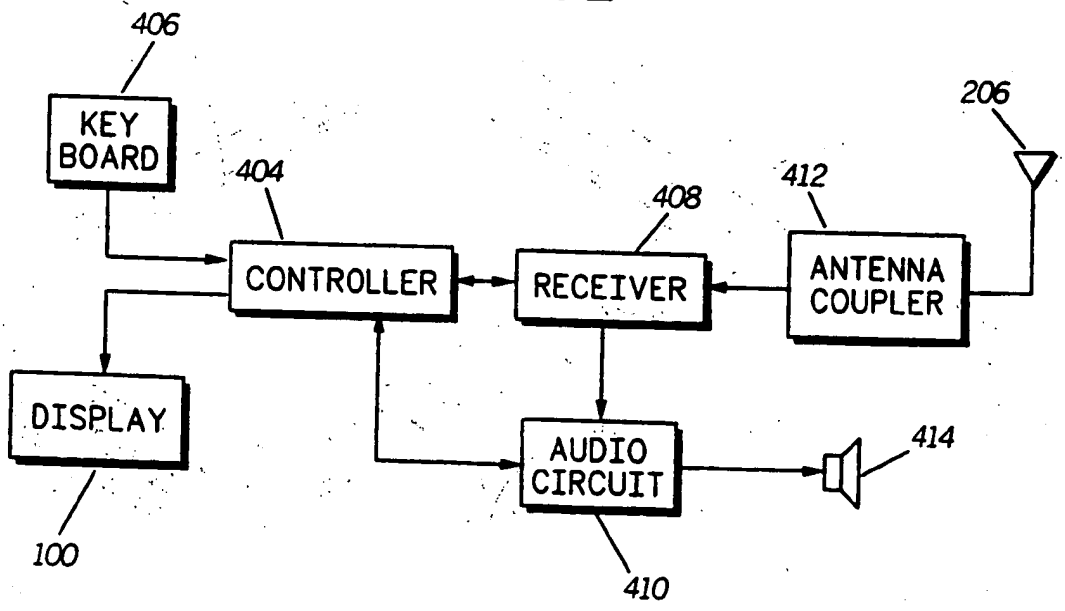

300
110
108
100
302
304

FIG.4


406
KEY BOARD
404
CONTROLLER
408
RECEIVER
412
ANTENNA COUPLER
206
DISPLAY
AUDIO CIRCUIT
414
100
410

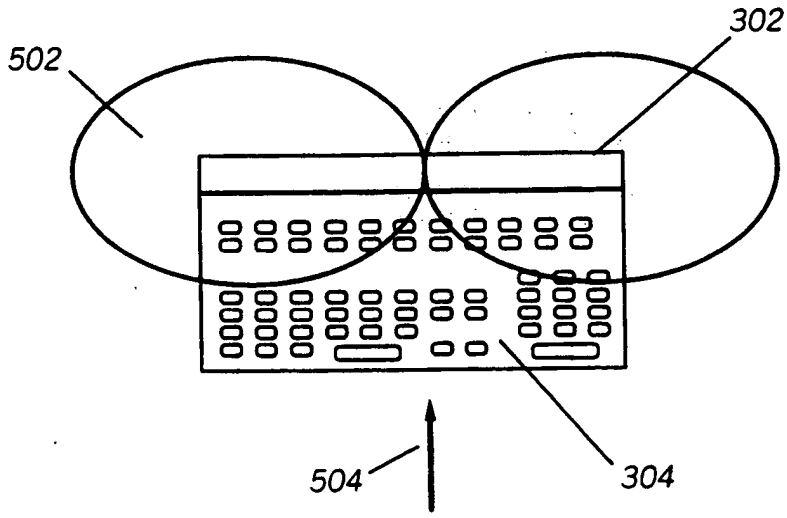


FIG.5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 92 31 0537

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	GB-A-2 217 538 (NEC) * page 2, line 5 - line 25; figures 1-4 *	1-10	H01Q1/24
Y	US-A-4 727 377 (YOTSUYA ET AL.) * abstract; figures 1,10-16 *	1-10	
A	EP-A-0 274 592 (YAGI ANTENNA) * column 2, line 20 - line 41; figure 2 * * column 4, line 44 - column 5, line 12; figures 1-31 *	1-10	
A	US-A-5 048 118 (BROOKS ET AL.) * claims 1-11; figures 1-4 *	1,4,8-10	
A	US-A-4 644 366 (SCHOLZ) * abstract; figures 1-5 *	1,4,8-10	
A	EP-A-0 347 151 (DOWTY MINING) * claims 1-10; figures 1-4 *	1,4,8-10	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5) H01Q

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	04 MARCH 1993	ANGRABEIT F.F.K.

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